

Claims

[c1] What is claimed is:

1. An audio player comprising:

a memory for storing a first audio file and a first text file, the first text file containing texts of the corresponding first audio file;

a user interface for selecting the first audio file;

a controller for loading the first audio file and the first text file;

a decoder for converting the first audio file into audio signals;

an audio output port for outputting the audio signals;

a video output port for displaying texts stored in the first text file on a display device electrically coupled to the video output port; and

a text calculating circuit for calculating a rate at which text is displayed on the display device according to a predetermined relationship between a duration of the first audio file and a size of the first text file.

[c2] 2. The audio player of claim 1 further comprising a first linking file stored in the memory, the first linking file utilized for linking the first text file to the corresponding

first audio file.

- [c3] 3.The audio player of claim 1 further comprising a first image file stored in the memory for serving as a background image when text from the corresponding first text file is displayed on the display device.
- [c4] 4.The audio player of claim 1 wherein the predetermined relationship for calculating the rate at which text is displayed on the display device satisfies the equation $F=T/N$, where F represents a moving frequency at which text is displayed on the display device, T represents the duration of the first audio file and, N represents a quantity of text stored in the first text file.
- [c5] 5.The audio player of claim 4 wherein the user interface is utilized for selecting a calculation mode of the audio player.
- [c6] 6.The audio player of claim 5 wherein the quantity of text N is selected from a group consisting of N_c , N_w , N_s , and N_p according to the selected calculation mode, wherein N_c represents a number of characters in the first text file, N_w represents a number of words in the first text file, N_s represents a number of sentences in the first text file, and N_p represents a number of paragraphs in the first text file.

- [c7] 7.The audio player of claim 1 wherein the user interface comprises input buttons for scrolling through the text displayed on the display device.
- [c8] 8.The audio player of claim 1 wherein the user interface comprises input buttons for changing the rate at which text is displayed on the display device.
- [c9] 9.The audio player of claim 1 further comprising an interface port for transferring files from a host device to the memory of the audio player.
- [c10] 10.The audio player of claim 1 further comprising a character set file stored in the memory, the character set file containing a list of all characters included in all text files stored in the memory of the audio player.
- [c11] 11.The audio player of claim 1 wherein the decoder is an MP3 decoder.
- [c12] 12.A method of displaying text corresponding to an audio file on an audio player, the method comprising:
 - selecting a first audio file;
 - loading a first text file corresponding to the first audio file;
 - calculating a rate at which text is displayed on a display device electrically coupled to the audio player according

to a predetermined relationship between a duration of the first audio file and a size of the first text file; and displaying texts stored in the first text file on the display device at the calculated rate while simultaneously outputting audio signals decoded from the first audio file.

[c13] 13.The method of claim 12 further comprising reading a first linking file and locating the first text file and the first audio file according to linking identifiers stored in the first linking file.

[c14] 14.The method of claim 12 further comprising utilizing a first image file as a background image when text from the corresponding first text file is displayed on the display device.

[c15] 15.The method of claim 12 wherein the predetermined relationship for calculating the rate at which text is displayed on the display device satisfies the equation $F=T/N$, where F represents a moving frequency at which text is displayed on the display device, T represents the duration of the first audio file and, N represents a quantity of text stored in the first text file.

[c16] 16.The method of claim 15 further comprising selecting a calculation mode of the audio player, wherein the quantity of text N is selected from a group consisting of

N_C , N_W , N_S , and N_P according to the selected calculation mode, wherein N_C represents a number of characters in the first text file, N_W represents a number of words in the first text file, N_S represents a number of sentences in the first text file, and N_P represents a number of paragraphs in the first text file.

- [c17] 17.The method of claim 12 further comprising providing input buttons for scrolling through the text displayed on the display device.
- [c18] 18.The method of claim 12 further comprising providing input buttons for changing the rate at which text is displayed on the display device.
- [c19] 19.The method of claim 12 further comprising transferring the first audio file and the first text file to the audio player from a host device.
- [c20] 20.The method of claim 12 further comprising providing a character set file, the character set file containing a list of all characters included in all text files stored in the audio player.
- [c21] 21.The method of claim 20 wherein providing the character set file further comprises assigning a unique numerical code to each character contained in the character set file.

[c22] 22. The method of claim 21 wherein displaying texts stored in the first text file on the display device comprises reading a plurality of numerical codes from the first text file, reading the characters corresponding to the numerical codes from the character set file, and displaying the characters on the display device.